

What is claimed is:

1. (Amended) A barrel assembly of a zoom camera comprising:
 - a front lens frame having a front lens group;
 - a front guide frame for supporting the front lens frame;
 - a zoom ring advancing and retreating along an optical axis of the front lens group;
 - an inner helicoid ring installed to be capable of advancing and retreating with respect to the zoom ring;
 - a rear lens frame having a rear lens group arranged on the same optical axis as the front lens group; and
 - a cam unit formed at the zoom ring and an inner rotator installed at the inner helicoid ring to be capable of advancing and retreating for adjusting the interval between the front lens group and the rear lens group as the front lens group moves.
2. (Amended) The barrel assembly as claimed in claim 1, wherein the cam unit comprises:
 - a cam portion formed along an end portion of the zoom ring;
 - a protrusion formed at the outer circumferential surface of the inner rotator which is coupled to the inner helicoid ring by a guide unit and contacting the cam portion; and
 - a coupling unit installed at the inner rotator and the rear lens frame for advancing and retreating the rear lens frame with respect to the front guide frame.

3. (Amended) The barrel assembly as claimed in claim 2, wherein the coupling unit comprises:

a coupling protrusion formed on the outer circumferential surface of the

rear lens frame and

a cam groove formed along the inner circumferential surface of the inner rotator to be coupled to the coupling protrusion.

4. (Amended) The barrel assembly as claimed in claim 3, wherein:

the cam groove comprises:

an entrance section for guiding entrance of the coupling protrusion;

an inclined section connected to the entrance section; and

an intermediary section linearly extending from the inclined section; and

the cam portion comprises:

a zoom section corresponding to the intermediary section and

an accommodating section formed at a portion corresponding to the inclined section to be inclined in a direction that is the same as the inclined section and opposite to the zoom section.

5. (Amended) A barrel assembly of a zoom camera comprising:

a front lens frame having a front lens group;

a front guide frame for supporting the front lens frame;

a zoom ring having a cam portion formed along an end portion of the zoom ring;

a rear lens frame having a rear lens group arranged on the same optical axis as the front lens group;

an inner helicoid ring coupled to the zoom ring by an advancing and retreating unit;

an inner rotator advancing and retreating in a lengthwise direction by a guide unit along the inner circumferential surface of the inner helicoid ring;

a cam unit installed at the outer circumferential surface of the inner rotator and the zoom ring for advancing and retreating the inner rotator during rotation of the inner helicoid ring and including a coupling unit formed on the inner circumferential surface of the inner rotator and the outer circumferential surface of the rear lens frame for advancing and retreating the rear lens frame during the rotation of the inner rotator; and

an inner guide ring coupled to the front guide frame and the rear lens frame to be capable of sliding for preventing the front guide frame and the rear lens frame from rotating.

6. (Amended) The barrel assembly as claimed in claim 5, wherein the advancing and retreating unit comprises:

a helicoid female screw thread formed on the inner circumferential surface of the inner helicoid ring and

a helicoid male screw thread formed on the outer circumferential surface of the zoom ring.

7. (Amended) The barrel assembly as claimed in claim 5, wherein:

the cam unit comprises:

a cam portion formed along an end portion of the zoom ring
and

a protrusion formed on the outer circumferential surface of
the inner rotator coupled by the inner helicoid ring and
the guide unit and contacting the cam portion; and

the coupling unit comprises:

a guide protrusion formed on the outer circumferential
surface of the rear lens frame and
a cam groove formed in the inner circumferential surface of
the inner rotator to be coupled to the coupling
protrusion.

8. (Amended) The barrel assembly as claimed in claim 7, wherein:

the cam groove comprises:

an entrance section for guiding entrance of the coupling
protrusion;

an inclined section connected to the entrance section; and
an intermediary section linearly extending from the inclined
section; and

the cam portion comprises:

a zoom section corresponding to the intermediary section

and

an accommodating section formed at a portion

corresponding to the inclined section to be inclined in
a direction that is the same as the inclined section
and opposite to the zoom section.

9. (Amended) The barrel assembly as claimed in claim 5, wherein the front guide frame, the rear lens frame, and the inner guide ring are coupled to one another by first guide pieces formed on the outer circumferential surfaces of the front guide frame and the rear lens frame at a predetermined interval, and second guide pieces formed on the outer circumferential surface of the inner guide ring and inserted between the first guide pieces.
10. (Amended) The barrel assembly as claimed in claim 5, wherein a spring for elastically biasing the front guide frame and the rear lens frame in the opposite directions is installed between the front guide frame and the rear lens frame.
11. (Amended) A barrel assembly of a zoom camera comprising:
 - a front lens frame having a front lens group;
 - a front guide frame for supporting the front lens frame;
 - a zoom ring having a cam portion formed along an end portion of the zoom ring;
 - a rear lens frame having a rear lens group arranged on the same optical axis as the front lens group;

an inner helicoid ring coupled to the zoom ring by an advancing and retreating unit;

an inner rotator advancing and retreating in a lengthwise direction by a first guide unit along the inner circumferential surface of the inner helicoid ring;

a cam unit installed at the outer circumferential surface of the inner rotator and the zoom ring for advancing and retreating the inner rotator during rotation of the inner helicoid ring and including a coupling unit formed on the inner circumferential surface of the inner rotator and the outer circumferential surface of the rear lens frame for advancing and retreating the rear lens frame during the rotation of the inner rotator;

an inner guide ring coupled to the front guide frame and the rear lens frame to be capable of sliding for preventing the front guide frame and the rear lens frame from rotating;

a guide ring coupled to the inner guide ring to be capable of advancing and retreating by a second guide unit;

a helicoid ring in which the guide ring is rotatably inserted and coupled to the inner helicoid ring by a third guide unit for advancing and retreating the inner helicoid ring while rotating the inner helicoid ring during rotation of the helicoid ring; and

a driving unit for driving the helicoid ring.

12. (Amended) The barrel assembly as claimed in claim 11, wherein the advancing and retreating unit comprises:

a helicoid female screw thread formed on the inner circumferential surface of the inner helicoid ring and
a helicoid male screw thread formed on the outer circumferential surface of the zoom ring.

13. (Amended) The barrel assembly as claimed in claim 11, wherein:

the cam unit comprises:

a cam portion formed along an end portion of the zoom ring
and
a protrusion formed on the outer circumferential surface of
the inner rotator coupled by the inner helicoid ring and
the guide unit and contacting the cam portion; and

the coupling unit comprises:

a guide protrusion formed on the outer circumferential
surface of the rear lens frame and
a cam groove formed in the inner circumferential surface of
the inner rotator to be coupled to the coupling
protrusion.

14. (Amended) The barrel assembly as claimed in claim 13, wherein:

the cam groove comprises:

an entrance section for guiding entrance of the coupling
protrusion;

an inclined section connected to the entrance section; and
an intermediary section linearly extending from the inclined
section; and

the cam portion comprises:

a zoom section corresponding to the intermediary section

and

an accommodating section formed at a portion
corresponding to the inclined section to be inclined in
a direction that is the same as the inclined section
and opposite to the zoom section.

15. (Amended) The barrel assembly as claimed in claim 10, wherein the front guide frame, the rear lens frame, and the inner guide ring are coupled to one another by first guide pieces formed on the outer circumferential surfaces of the front guide frame and the rear lens frame at a predetermined interval, and second guide pieces formed on the outer circumferential surface of the inner guide ring and inserted between the first guide pieces.
16. (Amended) The barrel assembly as claimed in claim 4, wherein a spring for elastically biasing the front guide frame and the rear lens frame in the opposite directions is installed between the front guide frame and the rear lens frame.

17. The barrel assembly as claimed in claim 11, wherein the third guide unit comprises a guide protrusion formed on the outer circumferential surface of the inner helicoid ring and the guide protrusion is coupled to a guide groove formed on the inner circumferential surface of the helicoid ring in a lengthwise direction by passing through a slot formed in the outer circumferential surface of the guide ring.

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